Statewide Summary of Oil and Hazardous Substance Spill Data

(Fiscal Years 1996-2002)

Provisional Report

prepared by

Alaska Department of Environmental Conservation
Division of Spill Prevention and Response
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Executive Summary

This spill data analysis report provides findings related to spills reported to the Alaska Department of Environmental Conservation (ADEC) for the seven-year period extending from July 1, 1995 to June 30, 2002 (State Fiscal Year (FY) 1996-2002). The spill data is used by ADEC staff to highlight any significant trends and focus prevention and outreach efforts to educate industry and the general public, as well as to validate budget submissions and resource allocation through a risk-based decision process. As an example, ADEC staff keyed on a noticeable trend in home heating oil tanks and launched a public outreach and awareness program in order to educate homeowners on spill prevention measures.

This report is considered to be a provisional draft as there are a few quality assurance/ quality control (QA/QC) issues associated with the information received over the past seven years. Additionally, significant changes have occurred over this period including activation and deactivation of Contingency Plan (C-Plan) facilities. Also, recent legislation (which became effective in FY2003) resulted in the regulation of non-tank vessels over 400 gross tons as well as the Alaska Railroad. Hence, this report includes spills from these entities under the "non-regulated" category. The statistical analysis performed was limited to a review of the basic data depicted in tables and charts. This report serves as the over-arching, summary report for existing spill data. DEC staff will develop additional reports which focus on specific issues related to spill prevention and response.

DEC's Prevention and Emergency Response Program (PERP) staff, as part of the Spill Prevention and Response (SPAR) Division, are primarily responsible for the SPILLS Database. Staff have completed the conversion of the SPILLS Database from Rbase to a web-based application. This conversion will enable official users to browse through spill data and acquire information on specific spills.

An electronic version of this report is also available on the ADEC website at:

http://www.state.ak.us/dec/dspar/perp/home.htm

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The following summary and tables present a synopsis of the information included in this report:

- A total of 15,731 spills were reported during FY 96-02, or an average of 2,247 spills per year. There is no apparent trend in the number of spills occurring annually within the state.
- Spills from unregulated facilities (84%) occur more than five times as frequently than spills from regulated facilities (16%), and result in over 2,260,000 gallons of spilled product (as compared to 807,512 gallons of spillage for regulated facilities).
- The majority of spills (57%) were 10 gallons or less; however, the largest percentage (94%, in terms of cumulative spill volume) occurred from spills of 100 gallons or more.
- The most common product category spilled was noncrude oil, which also accounted for nearly half of the total volume spilled during this seven-year reporting period. By comparison, crude oil spills made up only 4% of the total number of spills, and accounted for 16% of the total volume spilled.
- The largest spill in pounds was urea solid, at 220,000 pounds, and the largest spill in gallons was process water (brine) at 994,400 gallons.
- Process water spills accounted for 32% of the total volume of product spilled.
- Most spills occurred at transportation-related facilities; however, "Other" facilities generated the greatest volume spilled, and cargo barges generated the greatest mass spilled.
- Structural and mechanical systems failure was a major cause of spills. Capsized ships caused the largest

spill reported in pounds.

- The highest number of spills and the largest spill reported in pounds occurred in the Central Alaska Response Area and the Cook Inlet Subarea, respectively.
- The Northern Alaska Response Area experienced the greatest volume spilled. The NW Arctic Subarea experienced the highest overall spill volume.

Significant Spill Parameters and Values (Excluding Process Water)

Parameter	Most Common (Percent of Total Spills)	Greatest Volume (Percent of Total Gallons Spilled)
Size Category	Under 10 Gallons (57%)	100+ Gallons (94%)
Product	Diesel (34%)	Diesel (32%)
Product Category	Noncrude oil (81%)	Noncrude Oil (49%)
Facility Category	Transportation (45%)	Transportation (51%)
Cause Category	Structural/Mechanical (51%)	Structural/Mechanical (33%)
Response Area	Northern Alaska (42%)	Northern Alaska (33%)
Subarea	Cook Inlet (26%)	Northwest Arctic (29%)

Significant Spill Parameters and Values: Process Water

Parameter	Most Common (Percent of Total Spills)	Greatest Volume (Percent of Total Gallons Spilled)
Size Category	10 to 99 Gallons (7%)	100+ Gallons (99%)
Cause Category	Structural/Mechanical (68%)	Other (81%)
Facility Category	Transportation (70%)	Transportation (95%)
Subarea	North Slope (67%)	North Slope (94%)

Interesting Facts and Figures: Significant Spills (FY96-02)

Facility Type	Date of Spill	Location	Amount	Product
Transportation				
Pipeline	Oct 4, 2001	TAPS Milepost 400	285,600 gals	crude oil
Truck	Jul 19, 1999	Red Dog Mine	160,000 lbs	zinc concentrate
Rail	Dec 22, 1999	Gold Creek	120,516 gal	JP8 (jet fuel)
Air	Jun 22, 2002	Eielson AFB	100,000 gals	diesel
Vessel				
Tanker Vessel	Mar 24, 1989**	Prince William Sound (PWS)	11 million gals	crude oil
Fishing Vessel	Aug 4, 2001	PWS, F/V Windy Bay	35,000 gals	diesel
Other Vessel	Nov 26, 1997	Dutch Harbor (M/V Kuroshima)	39,000 gals	bunker C
Other Vessel	Jan 25, 1997	Cook Inlet (Barge Oregon)	220,000 lbs	urea
Storage				
Tank Farm	Mar 24, 2000	Unalakleet	84,360 gals	gasoline
EHS Facility				
Cannery (Ammonia)	Jul 1, 1998	Homer (Icicle Seafoods)	35,000 lbs	ammonia
Log Processing	Oct 21, 1996	Ketchikan	5,500 gals	acrylamide

**Spill occurred before the SPILLS database went into production.

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Introduction

In this study the Alaska Department of Environmental Conservation (ADEC) examines seven years of State spill reporting data to gain an understanding on a statewide and regional level the amount of petroleum and hazardous substances entering the environment from petroleum extraction, transportation, and consumption by human activity. Reported spills include those entering marine, freshwater, wetlands, land, air and groundwater. On average, the ADEC receives 2,247 spill reports each year.

PURPOSE, OBJECTIVE, AND SIGNIFICANCE OF DATA

The purpose of this study is to conduct a comprehensive analysis of oil and hazardous substance spills reported to the ADEC for the period of July 1, 1995 to June 30, 2002 using data collected and entered into the ADEC Prevention and Emergency Response Program (PERP) SPILLS database. The SPILLS database is linked to the ADEC Industry Preparedness Program Contingency Plan database. This linkage allows for the ability to analyze spill data for facilities and vessels regulated by the State of Alaska, as well as unregulated entities. **Figure 1** illustrates the major components of Alaska's oil production, transportation and storage system.

The overall objective of this study is to determine and develop a clear understanding of spill trends using parameters such as spill size, frequency, product, product category, facility category, cause category, geographic area, state regulated facilities and unregulated entities in Alaska.

The significance of this study is to identify spill trends and causal relationships with the intent of strengthening prevention components to reduce the occurrence of oil and hazardous substance spills and prepare for future spills in Alaska. The report also validates SPAR budget submissions, statewide positioning of response equipment assets, and resource allocations by applying a risk-based decision-making process. Data analysis and interpretation will assist the ADEC with the development of prevention program initiatives for unregulated entities. The comprehensive analysis will assist in identifying facilities where regulatory inspections and exercises may be conducted to prevent future spills. Interpreting the data geographically will aid governmental entities to focus on communities where prevention, response, and preparedness enhancements could be implemented to mitigate spill impacts.

BACKGROUND

Oil Activities in Alaska

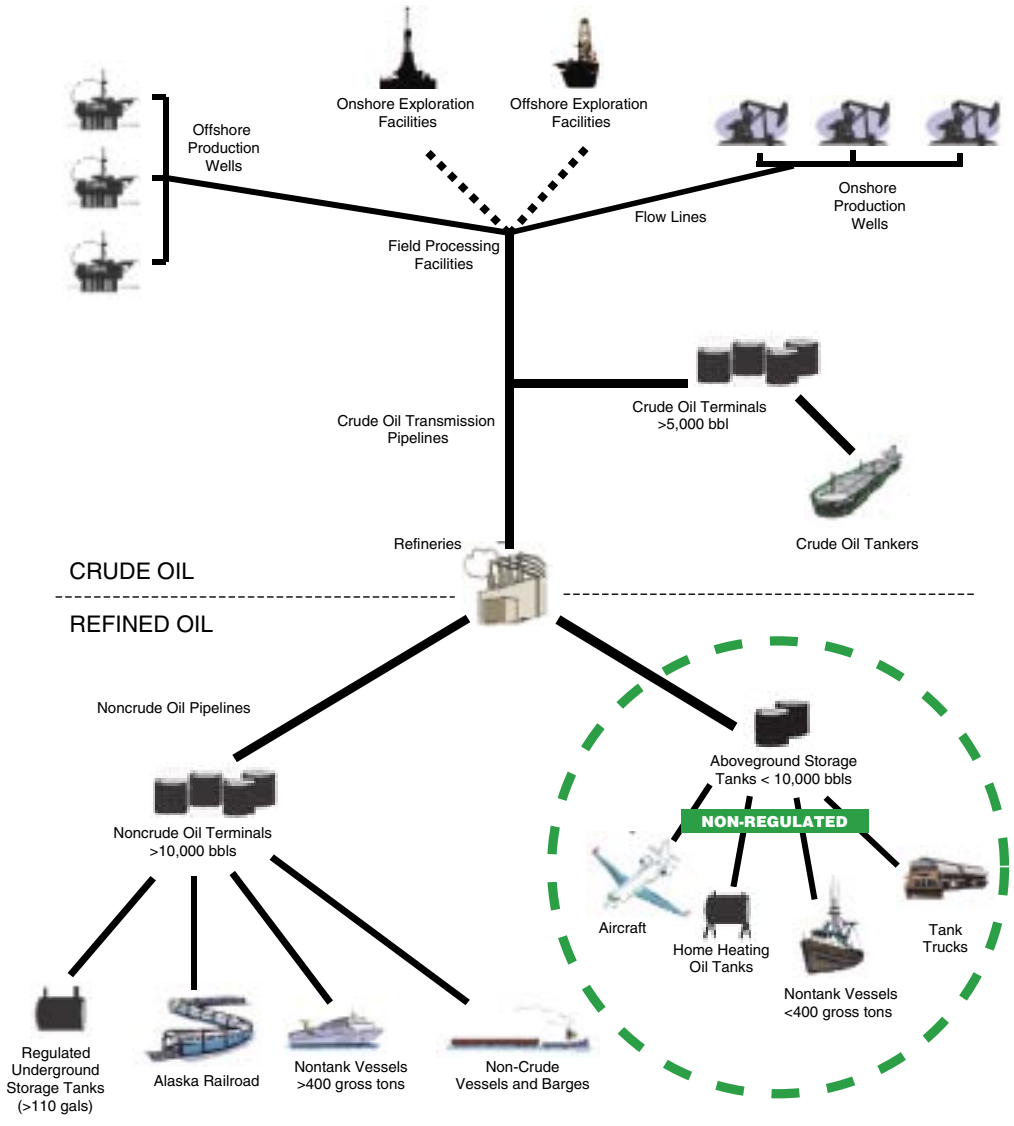
Alaska currently produces approximately one million barrels per day of crude oil after peaking as the nation's biggest oil producing state at two million barrels per day. Oil and gas exploration began early in Alaska's history on the North Slope and in Cook Inlet. The discovery of world class oil reserves at Prudhoe Bay presented many new challenges for the state. The oil transport and delivery system in Alaska includes drilling platforms/well sites, sub-sea and terrestrial pipelines, tanker terminals, tanker transportation, refinery and oil storage facilities, and fuel barges. Alaska has drilling operations both onshore and offshore. Offshore drilling occurs in both the arctic and sub-arctic regions, in ice-infested waters or seasonally ice-infested waters, and in areas of extreme tidal currents.

The Port of Valdez is one of the largest ports in the nation in terms of total crude oil tonnage transported from the region. There are over 800 tanker calls at the Alyeska Valdez Marine Terminal in any given year with ships ranging in size from 60,000 to 265,000 dead weight tons (DWT) capacity.

Petroleum and chemical consumption by human related activities can result in spills to the environment. Damage from leaks in the system could have either chronic or catastrophic economic and environmental impacts. Loading operations at the terminals have been very successful in terms of minimizing oil spillage into the marine environment. There is always a risk of a large spill occurring during loading operations, and there is risk of a spill associated with the large tank storage facilities located at the terminals. The tanker transportation system

Figure 1

Oil Production, Transportation and Storage in Alaska



Major components of Alaska's oil production, transportation and storage system. State-approved oil discharge prevention and contingency plans are required for regulated facilities and vessels. Plans are now in place for over 30 million barrels of crude and non-crude oil handled by Alaska's storage and transportation system. The facilities designated as "non-regulated" are not required to have a state-approved oil discharge prevention and contingency plan.

in Alaska has received a great deal of attention following the *T/V Exxon Valdez* oil spill. The Oil Pollution Act of 1990 significantly enhanced prevention and response requirements for tank vessels and requires all single-hulled tankers be replaced with double-hulled tankers by the year 2010.

Spill Reporting Requirements

The general requirements for reporting spills of oil and hazardous substances to the state are found in Alaska Statute (AS 46.03.755, AS 46.03.745 and AS 46.09.010) and regulations (18 AAC 75.300). These requirements are summarized on the ADEC Spill Reporting Placard, which is regularly updated to list current telephone and fax numbers for contacting ADEC during and after business hours.

Under 18 AAC 75.300(a)(1), a person in charge of a facility or operation is required to notify the Department as soon as the person has knowledge of any discharge of a hazardous substance other than oil. "Hazardous substance" is defined as "an element or compound which…presents an imminent and substantial danger to the public health or welfare…" [AS 46.03.826(5)(A)]. The regulation also sets forth specific time frames for the reporting of oil spills based on three receiving environments-water, land, or an impermeable secondary containment area or structure. Notwithstanding these requirements, AS 46.03.755(b) authorizes the ADEC to enter into a written agreement with a person for the periodic reporting of minor discharges other than into state waters.

Homeowners are exempt from the reporting requirements of 18 AAC 75.300 based on the definition of "person in charge", which excludes persons "exercising a possessory interest…solely for the purpose of providing a place of residence for the person" (18 AAC 75.990(47) (C)). However, homeowners are not exempt from liability for a spill under AS 46.03.822 (Strict Liability for the Release of Hazardous Substances).

Reporting Conventions for Oil and Hazardous Substance Spills

Hazardous Substance Discharges: Any release of a hazardous substance must be reported immediately (i.e., as soon as the person has knowledge of the discharge).

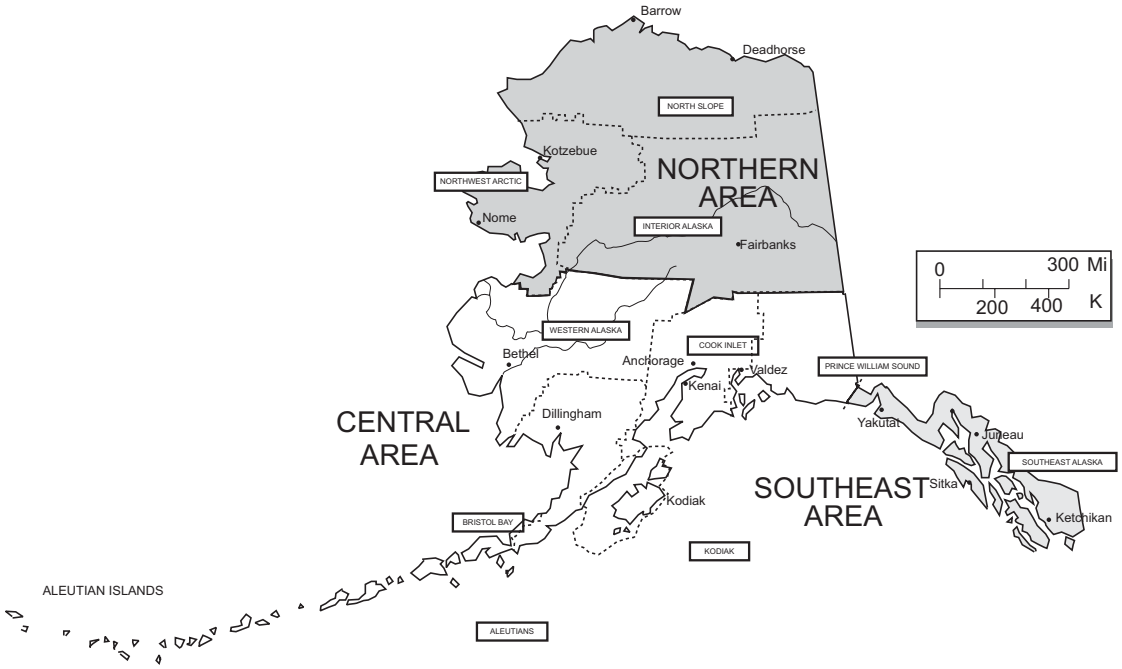
Oil Discharges:

- **To Water:** Any release of oil to water must be reported immediately (i.e., as soon as the person has knowledge of the discharge).
- **To Land:**
  - Any release of oil in excess of 55 gallons must be reported immediately (i.e., as soon as the person has knowledge of the discharge).
  - Any release of oil in excess of 10 gallons but less than 55 gallons must be reported within 48 hours after the person has knowledge of the discharge.
  - A person in charge of a facility or operation shall maintain and provide to DEC on a monthly basis, a written record of any discharge of oil from 1 to 10 gallons.
- **To Impermeable Secondary Containment Areas**
  - Any release of oil in excess of 55 gallons must be reported within 48 hours after the person has knowledge of the discharge.

ADEC Regions/Subareas and Response Areas

In 1991, 18 AAC 75.495 established within the State of Alaska ten regions for the purpose of preparing regional oil and hazardous substance contingency plans as required by AS 46.04.210. The ten regions are, Southeast Alaska, Prince William Sound, Cook Inlet, Kodiak Island, Aleutian, Bristol Bay, Western Alaska, Northwest Arctic, North Slope and Interior Alaska. The ADEC divided the State into three spill response jurisdiction areas. Figure 2 provides a map and boundary definitions for the planning and response regions or subareas, and the three ADEC response areas.

Figure 2: Map-- ADEC Subareas and Response Areas.



18 AAC 75.495. REGIONAL MASTER DISCHARGE PREVENTION AND CONTINGENCY PLAN

(a) The regions described in this subsection and depicted on the map at Figure 1 are established for the purpose of preparing a regional master oil and hazardous substance discharge prevention and contingency plan as required by AS 46.04.210 :

(1) Southeast Alaska Region: that area of the state east of 142ø W. longitude and south of a line just west of Icy Bay that connects the U.S.-Canadian border with the Gulf of Alaska, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured;

(2) Prince William Sound Region: that area south of 63ø30' N. latitude, west of the region described in (1) of this subsection, and east of the region described in (3) of this subsection, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured;

(3) Cook Inlet Region: that area encompassed by the boundaries of the Kenai Peninsula Borough, the Municipality of Anchorage, and the Matanuska-Susitna Borough, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured;

(4) Kodiak Island Region: that area encompassed by the boundaries of the Kodiak Island Borough, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured;

(5) Aleutian Region: that area encompassed by the boundaries of the Aleutians East Borough and the Aleutians West Coastal Resource Service Area, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured;

(6) Bristol Bay Region: that area encompassed by the boundaries of the Bristol Bay Coastal Resource Service Area, the Bristol Bay Borough, and the Lake and Peninsula Borough, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured;

(7) Western Alaska Region: that area north of the area described in (6) of this subsection, encompassed by the boundaries of the southernmost boundary of the Bering Straits Regional Corporation, and Regional Educational Attendance Areas 11 and 5, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured;

(8) Northwest Arctic Region: that area encompassed by the Northwest Arctic Borough and the Bering Straits Regional Corporation, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured;

(9) North Slope Region: that area encompassed by the boundaries of the North Slope Borough, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured; and

(10) Interior Alaska Region: that area of the state not included in (1) - (9) of this subsection.

(b) If the department finds that a discharge that could occur in an area beyond the territorial sea would not have a significant adverse impact on the resources of the state or on other interests of the state, the department will, in its discretion, adjust the seaward boundary of a region established in (a) of this section to exclude that area.

Oil Spill Summary Reports

In 1999, an Oil Spill Summary Report for Fiscal Years 1996-1998 was prepared by Emcon Alaska, Inc. for the ADEC. The report was a summary of reported spills of oil and chemicals in Alaska during the period of July 1, 1995 through June 30, 1998. A comprehensive analysis of spill data was performed to identify the types of industries, locations, and activities most commonly associated with a spill. Specifically, data related to spill size, frequency, substance, cause, source, location and time of year were examined for relationships between the number of spills and the volume or mass of spills. The purpose of the report was to convey the information in the ADEC SPILLS database in a clear, concise manner and to further ADEC's efforts to prevent and prepare for future spills.

In May 2002, the National Research Council (NRC) issued a report titled, *Oil in the Sea III: Inputs, Fates, and Effects*. This study, as did two previous NRC reports, attempted to develop a sense of the major sources of petroleum contamination entering the marine environment, and whether the volume or sources introduced have changed over time.

The Emergency Response Notification System (ERNS) database is located at the National Response Center (NRC) website. The NRC is the sole federal point of contact for reporting oil and chemical spills. National statistics may be accessed at: http://www.nrc.uscg.mil/stats.html

The Pacific States/British Columbia Oil Spill Task Force has also initiated a project to consolidate spill reports into a database for the area of concern (Alaska, Washington, California, Oregon, Hawaii, and British Columbia). For information regarding this initiative, visit the following website: http://wlapwww.gov.bc.ca/eeeb/taskforc/datapro.htm

Hazardous and Extremely Hazardous Substances Reports

In late 1993, the ADEC initiated the statewide hazards analysis project. The project consisted of a series of tasks leading to a primary objective of characterizing the hazards posed by certain chemical substances across the state. In 1995, a cumulative State and Regional Hazard Profile report was prepared for the ADEC by Easton Environmental. The 1995 report profiled the hazards associated with extremely hazardous substances (EHS) in Alaska. It identified the substances, where they were found, how they were transported, the risks they posed to the general public, and the response capability.

In 1998, an updated Statewide Hazardous Material Inventory was prepared for the ADEC by Hart Crowser. The 1998 study added two additional sections, one for hazardous substances and one for petroleum products. A hazards analysis section was not included as part of the 1998 report. In 1999, a subsequent Statewide Hazardous Material Inventory was conducted by Hart Crowser for the ADEC and in September of 2000 a report titled, "Evaluation of Chemical Threats to the Alaska Public" was prepared for the ADEC by Hart Crowser.

Information for all of these reports was collected primarily using the Tier Two reports required under the Superfund Amendments and Reauthorization Act (SARA) Title III, Community Right-to-Know Act. Tier Two reports are due to the State Emergency Response Commission (SERC) by March 1 of each year. A 2002 survey of Tier Two reporting facilities indicated that there are 809 facilities that store reportable quantities of hazardous substances in Alaska. This does not include transportation facilities, which are exempt from Tier Two reporting. Reportable substances include explosives, poisons, flammable solids, radioactive substances, compressed gases, and substances which require a material safety data sheet (MSDS). EHS chemicals most commonly stored and used in Alaska include chlorine, ammonia, and sulfuric acid. The state experiences an average of 62 EHS releases per year. Ammonia (39%), sulfur dioxide (25%) and chlorine (18%) were the most common EHS released.

SCOPE & LIMITATION

The original Statewide ADEC SPILLS database, a DOS application, went into production July 1, 1995. The database was developed to electronically manage information about oil and hazardous substance releases on a statewide basis. During calendar year 2001, the database was redeveloped as a web-based application with a sequel server or SQL backend. This new application went into production in September 2001. The database is currently used for spill statistics and caseload management. In addition, the database is used to provide information for use in other ADEC programs and to respond to inquiries from the public about spills. The data frame used for this report contains 15,731 statewide entries over a 7-year period.

The SPILLS database is currently linked to the ADEC Industry Preparedness Program (IPP) database used to track facilities that are required to submit Oil Discharge Prevention and Contingency Plans to the ADEC. The IPP database has a total of 288 facilities identified, which includes 162 vessel plans, 75 oil terminal plans, 49 exploration and production plans, one pipeline plan and one marine terminal plan. A facility identification number is assigned to each facility covered by an Oil Discharge Prevention and Contingency Plan which serves as the link between the SPILLS database and the CPLAN database. This connection provides the ability to analyze spill reporting data for state regulated facilities. For the purpose of this report regulated facility categories are defined as pipelines, refineries, terminals, exploration and production facilities, tanker vessels, and barges.

In addition to examining spill data at state regulated facilities a comprehensive analysis of spill data was performed to identify the types of unregulated facilities, locations, and activities most commonly associated with a spill. Specifically, data relating to the following spill parameters were examined for relationships between the number of spills and the volume or mass of spills:

- Number of Spills and Spill Volume
- Substances
- Causes
- Facility Type
- State Regulated Facilities
- Unregulated Facilities
- Location

Spill substances are broadly divided into three categories: crude oil, noncrude (refined) oil, and chemicals. Each of the following subcategories was analyzed and discussed individually.

Substances

- Oil
  - Crude Oil
  - Noncrude Oil
    - Diesel
    - Gasoline
- Chemicals
  - Process Water
  - Hazardous Substances
  - Extremely Hazardous Substances

Spill Size*. Spill size classes are divided into three categories:

- Under 10 gallons/pounds
- 10 to 99 gallons/pounds
- > 100 gallons/pounds

**NOTE: For the purposes of this report, most of the oil and hazardous substance spills were reported in gallons, while the majority of EHS releases were reported in pounds.*

Cause. Spill causes are broadly divided into four cause categories:

- Human factors
- Natural causes
- Structural/Mechanical
- Other

Facilities. Facilities are broadly divided into four categories:

- Transportation
- Storage
- Vessel/Barges
- Other

In this study descriptive statistics were used to analyze the spill data. Statistical analysis was used to measure frequency and distribution. Frequency counts and distribution were applied to qualitatively understand spill trends based on the listed parameters. As with any database, the accuracy of reported information resides with the initial and follow-on data entry by ADEC staff. Data for each record may be incomplete in a few cases.

The report is organized into three main sections. Section I, Statewide Data Summary, provides an overall analysis of the total number of spills, spill size, product, facility type, regulated and unregulated facilities, and cause. Section II contains an analysis of spills by substances, including size class, cause, and facility type, regulated and unregulated facilities and geographic areas. Section III addresses spills by subarea. This report also provides an appendix for acronyms and the glossary and an appendix listing significant releases from July 1, 1995 to June 30, 2002.

METHODS & PROCEDURE

Oil and hazardous substance spill reports are received by the ADEC area response teams from the responsible party or complainant by telephone or facsimile. The report is then entered into the database by ADEC staff. The spill records are loaded into a web application for browsing and editing upon user request. A user manual provides instructions on the use of the database. The application provides a variety of formats for new and existing spill records, including data entry forms, ad hoc query results, and reports. Data for each spill record is organized into categories, with each category provided on a separate panel.

This report is based on a dataset extracted from the production database and imported as a table into Microsoft Access 2002. This approach provided a static set of records to analyze, and precluded any problems caused by spill records being added or edited which would affect the spill counts and quantities released. All queries were created in Access and the results were directly exported to Microsoft Excel 2002. Excel was used to format the summary tables and to create the graphs used in the report. The report itself was created using Adobe InDesign 2.0. All data summary tables and graphs were converted to PDF files (Adobe Acrobat Portable Document Format) and “placed” in the InDesign document.

Definitions and Classifications

Accidents (Cause): Spills caused by accidents may be categorized as follows: collision/allision; derailment; grounding; rollover/capsize; and well blow-out.

Causes: See Appendix A, for the cause classification scheme used in the SPILLS Database.

Crude Oil: Unrefined liquid petroleum, ranging in gravity from 9° API to 55° API and in color from yellow to black. May have a paraffin, asphalt, or mixed base. If the oil contains a sizable amount of sulfur or sulfur components, it is called a sour crude; if it has little or no sulfur, it is called a sweet crude. In addition, crude oil may be referred to as heavy or light, according to API gravity, the lighter oil having the higher gravities.

Diesel Fuel: A light hydrocarbon mixture for diesel engines, similar to furnace fuel oil; it has a boiling range just above that of kerosene.

Exploration Facility: means a platform, vessel, or other facility used to explore for hydrocarbons in or on the waters of the state or in or on land in the state; the term does not include platforms or vessels used for stratigraphic drilling or other operations that are not authorized or intended to drill to a producing formation.

Extremely Hazardous Substance (EHS): Although there is no definition for extremely hazardous, the Senate Report on the Clean Air Act provides criteria EPA may use to determine if a substance is extremely hazardous. The report expressed the intent that the term "extremely hazardous substance" would include any agent "which may or may not be listed or otherwise identified by any Government agency which may as the result of short-term exposures associated with spills to the air cause death, injury or property damage due to its toxicity, reactivity, flammability, volatility, or corrosivity". The term "EHS" otherwise includes substances listed in the appendices to 40 CFR part 355, Emergency Planning and Notification.

Facility: means any offshore or onshore structure, improvement, vessel, vehicle, land, enterprise, or endeavor. See Appendix A for the Facility Classification scheme used in the SPILLS Database.

Gasoline: A volatile, flammable liquid hydrocarbon refined from crude oils and used universally as a fuel for internal-combustion, spark ignition engines.

Hazardous Substance: means (A) an element or compound that, when it enters into or on the surface or subsurface land or water of the state, presents an imminent and substantial danger to the public health or welfare, or to fish, animals, vegetation, or any part of the natural habitat in which fish, animals, or wildlife may be found; or (B) a substance defined as a hazardous substance under 42 U.S.C. 9601-9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); "hazardous substance" does not include uncontaminated crude oil or uncontaminated noncrude (refined) oil in an amount of 10 gallons or less.

Human Factors (Cause): Spills caused by human factors may be categorized as follows: bilge discharge; cargo not secured; human error; intentional release; overfill; sabotage/vandalism; and sinking.

Nontank Vessel: means a self-propelled watercraft of more than 400 gross registered tons; in this paragraph, "watercraft" includes commercial fishing vessels, commercial fish processor vessels, passenger vessels, and cargo vessels, but does not include a tank vessel, oil barge or public vessel.

Noncrude Oil: See Appendix A, Substance Classification, for the different types of substances that are classified as noncrude oil.

Oil: means petroleum products of any kind and in any form, whether crude, noncrude (refined), or a petroleum by-product, including petroleum, fuel oil, gasoline, lubricating oils, oily sludge, oily refuse, oil mixed with other wastes, liquefied natural gas, propane, butane, and other liquid hydrocarbons regardless of specific gravity.

Oil Barge: means a vessel which is not self-propelled and which is constructed or converted to carry oil as cargo in bulk.

Oil Terminal Facility: means an onshore or offshore facility of any kind, and related appurtenances, including but not limited to a deepwater port, bulk storage facility, or marina, located in, on, or under the surface of the land or waters of the state, including tide and submerged land, that is used for the purpose of transferring, processing, refining or storing oil; a vessel, other than a nontank vessel, is considered an oil terminal facility only when it is used to make a ship-to-ship transfer of oil; and when it is traveling between the place of the ship-to-ship transfer of oil and an oil terminal facility.

Other (Cause): Spills resulting from "other" causes may be categorized as follows: explosion; external factors; and other causes.

Other (Facility Classification): "Other" facilities listed in the ADEC SPILLS Database are classified as follows: drug lab; firing range; landfill/dump; other; salvage/wrecking yard; amd unknown.

Pipeline: means the facilities, including piping, compressors, pump stations, and storage tanks, used to transport crude oil and associated hydrocarbons between production facilities or from one or more production facilities to marine vessels.

Process Water (Oil Exploration and Production Operations): Process water includes seawater (and occasionally freshwater) and produced water. Seawater is injected into a formation to pressurize the reservoir and force the oil toward the oil production wells. Gelled water is seawater and freshwater that is mixed with a gelling substance to increase the viscosity of the fluid for a number of purposes. Seawater is also used to maintain the existing wells or to detect leaks in pipelines. Produced water is the water mixture consisting of oil, gas, and sand that is pumped from oil production wells. The percentage of crude oil occurring in process water can vary somewhat based on the source of the spill.

Process Water (Mining Operations): Process water for mining operations include water taken from tailing ponds for the milling process (reclaim water), water that has been through the water treatment plant but not the sand filter (process water), water that has been through both the water treatment and sand filter (discharge water), water mixed with ground ore materials (slurry) or water used in the milling and product recovery process (process solution water).

Production Facility: means a drilling rig, drill site, flow station, gathering center, pump station, storage tank, well, and related appurtenances on other facilities to produce, gather, clean, dehydrate, condition, or store crude oil and associated hydrocarbons in or on the water of the state or on land in the state; and gathering and flow lines used to transport crude oil and associated hydrocarbons to the inlet of a pipeline system for delivery to a marine facility, refinery, or other production facility.

Public Vessel: means a vessel that is operated by and is either owned or bareboat chartered by the United States, a state or a political subdivision of that state, or a foreign nation, except when the vessel is engaged in commerce.

Railroad Tank Car: means rolling stock used to transport oil in bulk as cargo by rail.

Storage (Facility Classification): Storage facilities listed in the ADEC SPILLS Database are classified as follows: cannery; farm/aquaculture; gas station; laundry service; log processing; logging operation; maintenance yard/shop; mining operation; crude oil terminal; non-crude oil terminal; power generation; refinery operation; residence; school; telecommunications; and water/wastewater facility.

Structural/Mechanical (Cause): A structural/mechanical cause may include the following: containment/overflow; corrosion; crack; equipment failure; erosion; gauge/site glass failure; hull failure; leak; line failure; puncture; seal failure; support structure failure; tank failure; tank support structure failure; valve failure; and vehicle leaks.

Tank Vessel: means a self-propelled waterborne vessel that is constructed or converted to carry liquid bulk cargo in tanks and includes tankers, tankships, and combination carriers when carrying oil; the term does not include vessels carrying oil in drums, barrels, or other packages, or vessels carrying oil as fuel or stores for that vessel.

Train: means connected rolling stock operated as a single moving vehicle on rails; for purposes of this paragraph, "connected rolling stock" includes railroad tank cars.

Transportation (Facility Classification): Transportation facilities listed in the ADEC SPILLS Database are classified as follows: air transportation (aircraft); air transportation (airport/airfield); harbor/port facility; oil exploration (offshore); oil exploration (onshore); oil production (offshore); oil production (onshore); flow lines; field processing; railroad operation; transmission pipeline; and vehicle.

Vessel (Facility Classification): Vessels listed in the ADEC SPILLS Database are classified as follows: Vessels 400 gross tons (GT) or more (includes barges, cargo vessels, other vessels, fishing vessels, passenger vessels, and tankers); Vessels less than 400 GT (includes cargo vessels, other vessels, fishing vessels and passenger vessels).

Vessel: includes tank vessels, oil barges, and nontank vessels.

SOURCES:

Alaska Statutes (AS 46, Current Edition)

A Dictionary of Petroleum Terms (Third Edition), The University of Texas at Austin, Petroleum Extension Service, 1983

U.S. EPA Chemical Emergency Preparedness and Prevention Office (CEPPO) website

ADEC/SPAR Classification Scheme